

Plane Talk

MAY • 1945



The Navy's Privateer (PB4Y-2)

Kodachrome by Otto Menge

**The General Said South • Stop At Accra • Look At Santa Ana Now!
At Germany's Heart • Testing The Controllable Wing • Bombing With Words**

Plane Talk

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The Privateer

Our cover shows one of the Navy's important new weapons for the war in the Pacific — the four-engined Privateer (PB4Y-2). This long range search plane is the newest Navy plane to see action; its production is being pushed by Consolidated Vultee under an 85-million dollar Navy contract, as the company's Liberator production comes to a halt. (Its final Liberator is scheduled to come down the San Diego assembly line late in May.)

The Privateer is also being made in a transport version designated as the RY-3. The transport is operated by a crew of four, has a range in excess of 3,000 miles, carries a gross weight of some 60,000 pounds and a useful load of around 30,000, and has facilities for 28 passengers. For alternate purposes it can carry 26 litters or an equivalent amount of cargo. The Royal Air Force Transport Command is using a fleet of these transports in the Pacific.

Assigned to various Fleet Air Wings in the Pacific, the PB4Y-2 is demonstrating in important engagements "its proved ability to complete long-range search missions, fight successfully for information and carry out low-altitude bombing attacks against enemy submarines." The words quoted are from a public statement by Rear Admiral DeWitt Clinton Ramsey.

Consolidated Vultee is also producer of three other important Navy planes — the still secret Sea Wolf torpedo bomber (TBY-2); the Coronado (PB2Y-5), now being overhauled to incorporate new power plants and jet take-off apparatus (see page 8); and the famous PBY patrol bomber, recently equipped as the PBY-6A with new turret, heavier armament, higher tail, and auxiliary fuel tanks that increase its range.

* * *

Overdue Acknowledgement: The photograph on Page 4 of the March issue was by Otto Menge, and the kodachrome on Page 5 by Edward Sievers.

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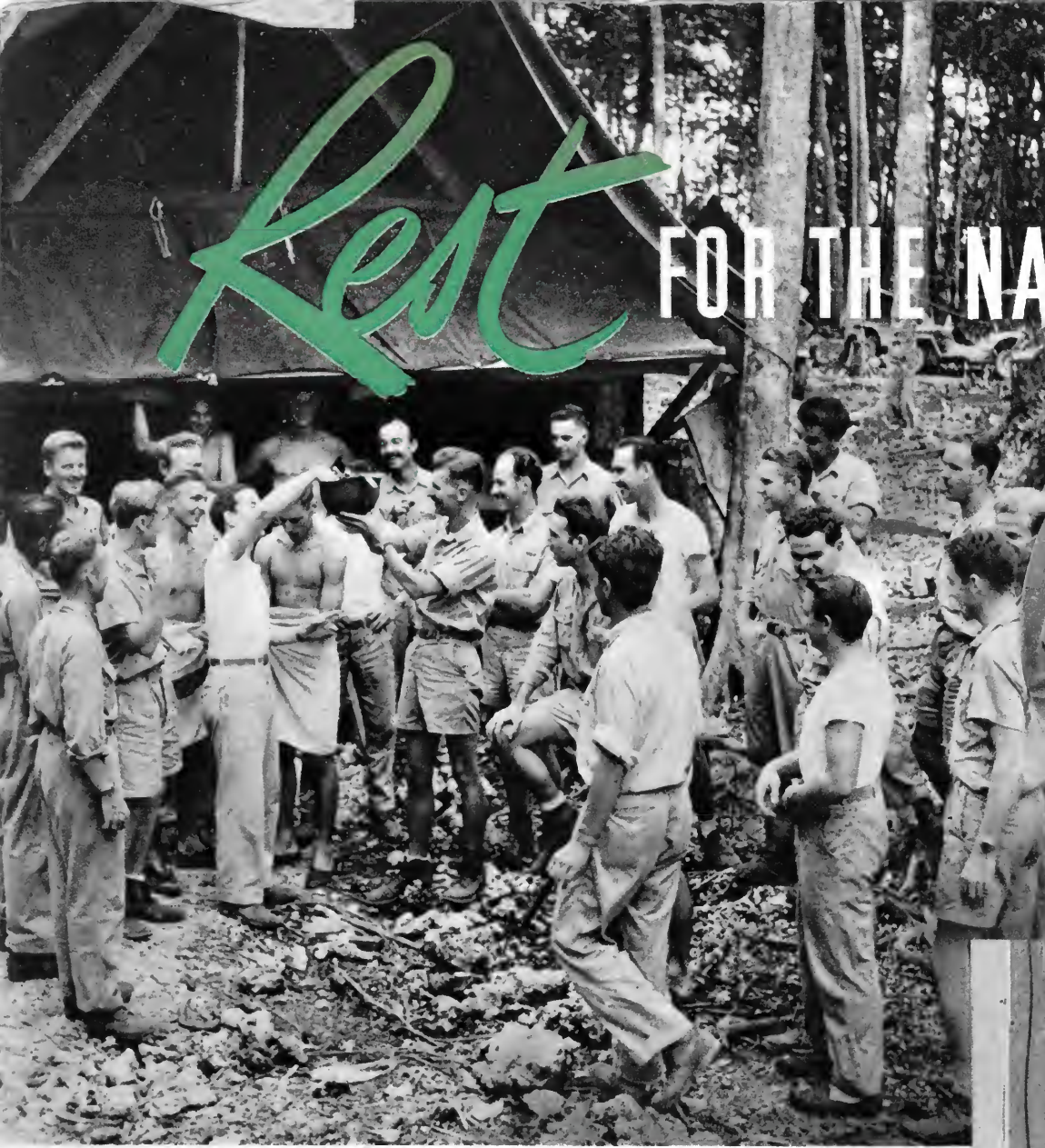
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Skilled artists, who convert engineers' blue prints into beautiful drawings anyone can understand, do vital work in war-plane production..... **32**

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PLANE TALK • MAY, 1945

Rest FOR THE NAVY'S FLYERS



This is a Privateer pilot in oxygen gear.

Above, Navy airmen at their isolated base draw for the fateful numbers which decide who is to go on leave this time. Pilots drop everything to get in on the drawing—one has just dashed from the shower. Below, the lucky men lug their gear to the dock, where small boats will haul them to a moored plane. Right, the men arrive on the dock in Auckland, a long way from home, but still civilization, full of friendly welcome.



The Navy's airmen work hard, take daring risks, are often the decisive force in our naval victories over the Japs. In return, the Navy takes superb care of its airmen. When fatigued, for instance, and in need of a leave, they can go to rest centers such as you see on the next page.





The Navy makes luxurious ease the watchword in its rest homes for airmen.



This is not quite typical of all Navy rest homes, but it's what flyers find at Glen Innis, near Auckland.



She's pouring them glasses of cold milk. That's a rare treat for airmen long in the tropics.



The companionship of nice girls is important. The Navy has the assistance of local residents in inviting and chaperoning them. This is a beach party in swimming suits.

They can play games if activity is what they want—or do nothing but lounge in the sunlight.



War has made millions of Americans into good letter writers. Here inspiration flows easily.





The rest leave usually runs from four days to a week at a typical Navy rest home. Then the refreshed men return, others come in rotation.

These airmen on horseback are surveying the beautiful New Zealand landscape from a hill-top near Auckland. It's a magnificent country.



At left is one of the dancing parties that local residents gladly help sponsor.

An airman's nerves get tortured and tense. Here is release. No orders, no musts.





AAF Photo

Two "flights" of Liberators (three planes make a "flight") leave their vapor trails over Europe. Soon, now, they will be on their way to the East.

AT GERMANY'S HEART: What Our

WE jeeped along the German roads, Captain John Ashford of San Francisco and I, and read the innumerable signs: *Shoulders Clear to Ditches . . . Road Cleared of Mines to Buildings . . .* or, equally often, *Fields Heavily Mined*.

You generate a fearful respect for these underground death-dealers. If your jeep pauses for a comfort stop you don't step off the hard pan. If you enter a bombed out shelter, you take care to step *over* any obstruction. Your imagination hints of unseen terrors, and your imagination is right.

The mines will be defiling the soil of Europe perhaps for years. Removing them is dangerous business. The French hope to use German prisoners of war for the nasty job.

We were following so close beside our own troops that mines still lay scattered on tops of snowdrifts. "See those gouges in the pine trees?" queried Ashford. Trees lining

both sides of the road had been notched and something tied there—something looking like bundles of shotgun shells, with a black umbilical cord attached. "At a touch of a switch those charges would go off," explained Ashford, "and the trees for miles along the road would topple over on the highway, to block our approach."

The charges didn't go off. The hand that was to spark them was stilled, perhaps, when a Liberator bomb paralyzed the whole power house where the current was generated.

We were on our way to one of the new hurry-up air strips that the aviation engineers began laying down in Germany as soon as we had a foothold across the Rhine.

We shall need many of these air strips long after the German surrender. For enough of our air force will stay on guard to assure the maintenance of order in Germany, for a long time to come. And our

bombers and transports will have important transport jobs to do for many months. For one thing, demobilization plans call for flying back some 50,000 men monthly to the United States—an extraordinary operation in itself.

By the time you read this you'll doubtless be thinking of organized war in Germany as ancient history. The strategic bombing was already polished off pretty well even before we crossed the Rhine. But we still had vital jobs for Liberators. You remember the old historical drama, where they loaded the family silver in the cannon at the climax and just hurled everything at the enemy? That was our Rhine crossing—we hurled everything. Some 240 Liberators, for instance, were put on the job of supplying paratroopers.

Don't think this was any loss of dignity for a fighting B-24. It was precision bombing extraordinary. Into a narrow slip repre-

senting our growing wedge, these Liberators had to deliver all the supplies needed by our paratroopers—ammunition, food, water, weapons. The paratrooper is a superman, understand. But starve him of ammunition or supplies and you may have a man dead and a mission thwarted.

The Liberator pilots assigned to support the paratroopers had for two years been eating flak for breakfast at five to twenty-four thousand feet up in the sky. Now they had an even tougher job—to unload supplies at treetop level. You have to be mighty good to operate a heavy bomber at a hundred feet of altitude, in shotgun range of the whole Nazi Army.

These boys did. The supplies were carried in bundles in the bomb bay of each plane. In some instances they were just tossed out to the troops by hand. One eye witness told me that he saw one crewman lose his footing in the bomb bay and fall out to be instantly killed.

Flying close as swallows, the Liberators carried in six thousand tons of supplies for our own 17th Airborne Division and a British airborne division, and put them down exactly where they had to be. Just a



Mechanics and ground crews have good quarters in Germany, will have lots of work for awhile.

centers—if indeed they are ever to be quite reconstructed.

By middle April of 1945, it was officially estimated that our strategic bombing had cut German gas production down to

it "deppo," just as you say "marshalling yards" for railroad freight yards, and "vehicles" for trucks.) It is literally something on wheels that can be quickly dismantled, pushed up closer to a scene of operations,

Bombing did

By **FRED B. BARTON**

few feet to the right or left could have put them in German hands.

This Liberator flight was one of the really sensational jobs in our Rhine crossing. We lost 24 out of the 240 great machines that did the work; but the result was to give our paratroopers supplies that sustained them until they could make contact with our ground forces—and that contact was absolutely vital to the success of our Rhine crossing.

NOT for a long time had any mission cost 10 per cent of the bombers involved. The average of our bombers lost on combat missions in Europe in 1944 was only 2 per cent. It fell below 1 per cent by February of this year—showing the measure of our air conquest of Germany.

And how we did it! I guess it will take more than a generation to rebuild Germany's industrial cities and manufacturing

4 per cent of its previous norm; steel producing capacity to 8 per cent; hard coal to 1 per cent; coke almost to nothing. Such figures show how completely Germany as an industrial power was wiped out.

That was the meaning of the order issued April 16 by General Carl A. Spaatz, Commander of the U.S. Strategic Air Forces in Europe, saying the strategic air war was ended, and our heavy bombers would hereafter support our ground forces in tactical operations.

Mark April 16, then, as a date that will go down in history as one of the most significant in all wars of modern times—the date when airpower for the first time in the world had destroyed a nation's resources for war.

THE pattern of the SAD, or Strategic Air Depot, we've been setting up in Middle Europe, is simple enough. (You pronounce

and reassembled. A hangar goes up almost overnight, with a roof of canvas like a circus tent. The control tower will contain a million dollars worth of equipment—but it's probably a pineboard shack made out of airplane packing cases.

A portable power plant generates electricity for the control tower's telephone and lights, for the field switchboard, for the miraculous teletypewriters which link all our European airbases into a unit. These teletypewriters flash last minute weather reports to a dozen airbases at once. They report each night the air crews that made land at some base, though they failed to get home—so their buddies needn't worry over them. These scattered airstrips make convenient landing spots that have saved many a crew in a flak-battered Liberator that could not have made the trip back to its own base.

The airstrip is laid down with equipment



AAF Photo

Laying down an airstrip in Germany: "We shall need many of these long after the surrender."

partly flown in by plane, partly pushed in by road. Surrounding it is a camp for personnel that mushrooms in and out of tents. And some building in a half-wrecked town nearby may be taken over for barracks.

Miracles of engineering often go on in the Strategic Air Depots. Damaged planes are pulled apart and rebuilt in record time. Sound parts from wrecked planes are removed to make replacements for other planes—a practice called "cannibalizing." The Eighth Air Force boasts, for instance, that no replacement wings for Liberators have ever been flown or shipped from the States to the European Theatre (ETO). Wings from a Liberator fuselage no longer air worthy are removed and treasured like a family heirloom, until they can be fitted on some other B-24 that needs them.

In five days I visited several of these hurry up airstrips in France and Germany. Speedy though their construction is, there is no compromise with engineering thoroughness. To prevent airplanes from sinking into the mud the engineers lay down long rolls of SMT—i.e., square-meshed track. On top of this—if the soil is soft—may go whole acres of PSP—pierced steel planking. On muddy German farms straw is sometimes used between the two layers as a drainage cushion. Overall goes sand.

Ashford told me that an average bomber runway contains enough metal to build 36 American locomotives, while the brick, gravel and cement used would form the bulk of two Washington monuments. In Germany we usually get any needed fill and masonry supplies by scooping up the shat-

tered debris of nearby towns and cities. Sometimes an entire village is razed to clear a needed site. Enough gas is needed by the machines used for grading to drive an auto around the equator 20 times. "All told," said the statistically minded Ashford, "the entire cargo space of 4 or 5 Liberty ships is needed to transport a single airstrip from the United States to Europe."

The Liberator men you see around these airstrips are tough. I have seen B-24 pilots in Iceland, England, and the ETO—meaning European Theatre of Operations. I've lived with others in India, Burma and China.

In the sunny part of the world our Liberator men take on a softness of skin and a gentleness of manner that seem to come from the climate. Here in the ETO, where life is rugged and winters are long, the big bomber men are tough, rough and gruff. They like to admit it. Sometimes they don't shave for days. The bulky clothing they wear doesn't lighten their mien.

The pilots speak lightly of the risks they ran. "I've seen planes fly home punched as full of holes as a sieve," says a young fellow, comfortably upholstered with a sheep-lined jacket and a gay neckerchief made of white parachute silk. "But now and then you saw one blow up. Stands to reason, if you hit them in the right place, they'd puff."

Another says, "The big cities weren't our worst targets. Some of the little places gave us lots more flak than the big ones did."

German children look on while engineers bring up fill, in the form of rubble, for an airstrip.

AAF Photo



PERHAPS you will understand that our men do not spare much sympathy for the Germans.

"I used to feel sorry for them when we had to commandeer a house for headquarters, but not any more," one soldier told me. He had seen his mates shot down beside him. "I'll order any family out on an hour's notice now, even if they have to move into a field."

Eisenhower's policy of "no fraternizing with the enemy" has teeth in it, as some officers and men have discovered. There is one notable case of a warrant officer who was fined \$390 for visiting a German girl in her home. For the GI's the fine is \$65, so they say "that is the \$65 question" when you ask them how they like the Heinies.

Our military police operate openly and without the bullying made famous by the Gestapo, but they are definitely tough. A young MP lieutenant from Palm Beach



AAF Photo

Air Force men enjoying chow in comfortable quarters requisitioned for their use in Germany: "Food is always good, and conversation original."

told me: "We search these German homes, and if we find any U. S. Army goods of any kind, we apprehend the goods and perhaps take the individual into safe keeping. Also we constantly pick up bicycles being ridden on the main highways and put them in the pound. If a truck convoy is moving along, as it always is, you can't be bothered by some Nazi civilian getting in the way with his market-basket on his bicycle."

The damage has been thorough. The aerial bombs did as much damage to native houses and buildings as did our guns and men. When you visit a German city—Aachen or Julich will serve as typical examples—you are not sure how much of the damage has been done by our side and how much by the Germans themselves.

Shortly before his untimely death President Roosevelt authorized the War Department to appoint a special bombing commis-

sion to appraise dispassionately the effect of our strategic bombing on the German economy. Until that report is compiled, together with other official reports by the Air Forces, we shall have no definitive summary of what our magnificent airmen accomplished in fulfilling the task our nation set them. But the remnants of the industrial Germany I have seen suggest that no words in any report can ever adequately picture the hell our airmen poured upon the Nazi machine and its operators.

German industrialists and Generals alike have testified that it was our bombing which destroyed them, beginning with 1943. Their testimony is a great tribute to the planning of our air forces and of the indomitable General Arnold, who battled the sceptics unable to understand what this new weapon could do, and built the greatest air force in the world.

Report says that many of our airmen will be leaving for the Pacific soon now. They'll be glad to leave the German scene. They don't like Germany. "Too beat up," one fellow described it to me. At that, they have managed temporarily to make themselves fairly comfortable. One outfit of aviation engineers I met had actually managed to acquire a new Steinway grand; it was kept moving with them, along with the crates of welding rods and other reserve equipment, the portable generator and wiring for the electric lights. They even offered me a hot shower.

Food is always good—and conversation over it is always original and friendly. Said one airman over a fine piece of beef, "For my money Paris is the world's most beautiful city." Then spoke a quiet voice from the corner. "Guess you've never seen Cedar Rapids," it said.



Otto Menge Photo

Thanks to new engineering, this Coronado is a newly powerful Navy weapon.

THE NEW CORONADO

AT an age when most military aircraft have reached obsolescence, the Navy's four engine Coronado flying boats are being made into virtually new airplanes. Given complete overhauls, new power plants, jet take-off apparatus, and the latest radio and detection installations, the Coronados leave Consolidated Vultee's San Diego plant as up-to-date military planes, with the Navy designation PB2Y-5.

As the first of the Consolidated Vultee flying boats to have jet propulsion for assistance in take-offs, the Coronado "5s" are better airplanes than when originally delivered in 1942 and 1943.

The jet propulsion equipment shortens

take-off runs and permits take-offs from rough water. There is a new type tail turret, with more effective waist guns. More space is provided on the flight deck because of the area required for detection equipment. Speed and range are increased. A new and larger auxiliary power unit is installed. The inboard engines are equipped with four-bladed propellers, with reversible blades that help improve control in taxiing. The outboard engines have three-bladed propellers. Fuel and electrical systems are completely modernized during the alterations.

Armament includes three turrets, each with two .50 caliber machine guns, and two continuous-feed side guns. Bombs are

carried in the wings, and aerial torpedoes ride beneath the two outboard engines.

Although the Coronados are old in service, only a few of them have been lost. Practically all of the PB2Y-3s built in 1942, 1943 and 1944 are still in service or have been brought back for modification. The cargo-transport versions of the same plane are PB2Y-3Rs, which were delivered to the Navy in 1943 and 1944 to help meet an acute supply problem in the Pacific.

Not all of the Coronado "3s" are going back to the Pacific war as combat planes. A few are being made into hospital ships, and designated PB2Y-5H by the Navy. These planes go out without armament.

These are Iwo Jima casualties, secured on stretchers, being carefully loaded by the Navy for flight to a base hospital in a Coronado PB2Y-5H.

U.S. Navy Photo





Kodachrome by Edward Sievers

HERE is a map with a rather frightening name—"Azimuthal Equidistant" projection. But it is the kind of map that will become familiar to millions in this air age. It was designed for the San Diego plant of Consolidated Vultee by the Company's Chief Navigator, Charles Mattingly.

In simple language, Azimuthal Equidistant means a map centered on one definite spot on the globe, from which the distance to any other point can be accurately measured. On such a map, the straight line connecting the center spot with any other point on earth is really a "great circle," which is the shortest distance between these two points.

This Azimuthal map is centered at San Diego.

At the bottom the map has an automatic distance and time scale. This scale gives a pointer reading when you pull out the cord,

centered at San Diego, and stretch it to the geographic point from which you wish to know intervening distance. A simple mechanism on the back slides the pointers in true co-relation to the straight distance represented by the projected string. Not only does the map give true "great circle" mileage, but also gives a flying time reading. On the Mattingly projection, this figure is

given in today's Liberator transport flying time for a given mileage.

More than 3,000 calculations are required to construct such a map for any given central point. Mattingly believes that soon maps of this kind will be seen on walls of airport waiting rooms, in school classes, in libraries, and in executive offices all over the world.

Map

FOR AN AIR WORLD



A plane equipped with the Spratt controllable wing flies horizontally—i.e., parallel with the ground—all the time. This is such a plane.

FOR almost half a century the Spratt family of Coatesville, Pa., have pursued an idea. They believe that flying can be greatly simplified by giving planes a controllable wing, instead of conventional ailerons and rudders. Dr. George Spratt was so convinced of this, 43 years ago, that he parted company with the Wright brothers because they insisted on using ailerons and rudders to maneuver aircraft. Today his son, George, Jr., is design specialist for the Stout Research Division of Consolidated Vultee at Dearborn, Michigan—and the younger Spratt is still working on the revolutionary method of airplane control which his father first advocated. He believes the controllable wing will give the airplane control features approaching the automobile controls in simplicity.

Announcement that Spratt's controllable wing is now being flight-tested by Consolidated Vultee came recently from I. M. Ladon, executive vice president. The initial test flight was made in January of this year at Elizabeth City, N. C., where Consolidated Vultee has one of its plants. The site of the take-off, interestingly enough, was only a short distance away from the village

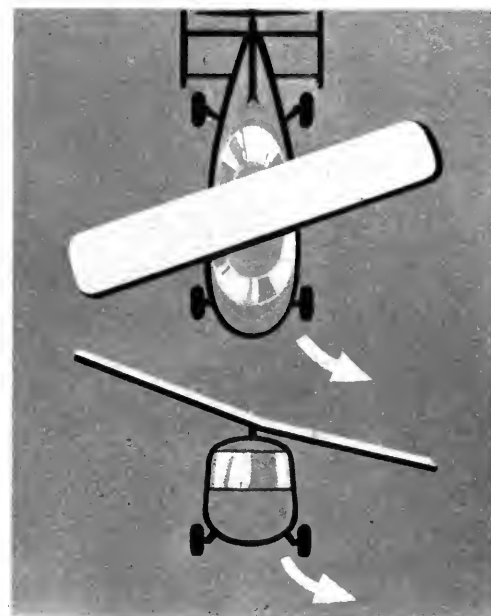
of Kitty Hawk, where the elder Spratt once championed his idea to the Wright brothers before they succeeded in their first powered flight from the top of Kill Devil Hill.

During the first test flight of the wing at Elizabeth City, the curious craft equipped with it remained in the air for 12½ minutes and reached an altitude of 1,000 feet. Subsequent test flights resulted in the plane's reaching an altitude of 6,000 feet, with no indication that this is its ceiling.

Conservative engineers are inclined to be wary of claims and chary of promised production. Hence they are making no claims that in the Spratt wing they have the key to a revolution in aircraft design. But some of the advantages of the new wing appear outstanding, in their promise of greater safety and easier handling of small aircraft.

The Spratt wing in its present form, for instance, offers control features approaching conventional automobile controls in their simplicity. There is a foot throttle for controlling engine speeds in take-offs and landings, and a lever comparable to an automobile gear shift for adjusting wing incidence and engine speed for cruising, climbing, and descending flight. An automobile

TESTING

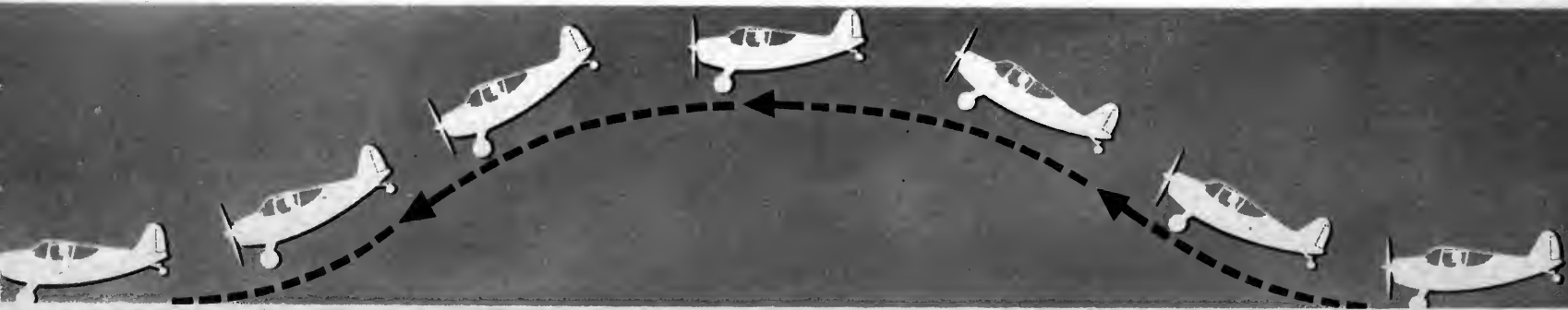


This diagrams the wings in position for turning left. For right turn, reverse procedure.

type steering wheel mounted upon a fixed support provides directional control for turns.

The wing is made "controllable" by

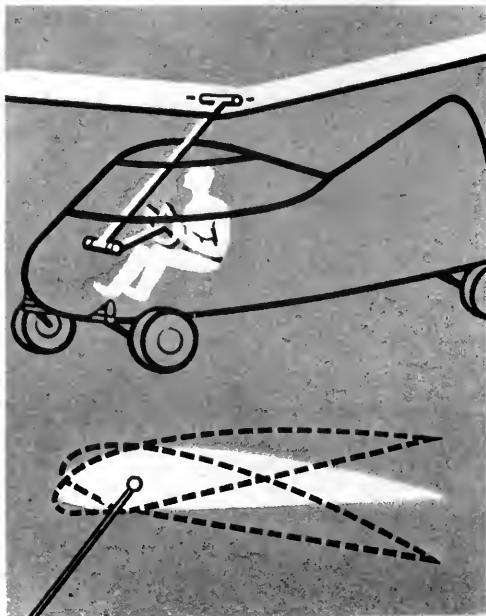
This shows a conventional type plane in take-off and landing. The entire plane must change its angle of inclination, to change angle of the wing.





This close-up of the plane on the ground gives a view of the operator at the automobile type wheel which steers the plane. (See diagram below.)

THE CONTROLLABLE WING



The wing is tilted the desired amount by moving the control wheel, and plane stays level.

mounting it on a bearing that permits movement about two different axes: One axis provides directional control, and the other provides longitudinal control. When

perfected it may eliminate the necessity of ailerons, elevators and rudders on small aircraft.

The experimental wing is 26½ feet in length. The method of wing mounting to the fuselage is such that the wing takes the entire shock from rough air, while the fuselage remains in a static position. Spratt declares that, relative to control forces, the wing is stable and virtually stallproof and spinproof. "It would take almost superhuman effort to put a controllable wing into a spin," he asserts.

Dr. Spratt, designer of the controllable wing, died in 1934 after devoting most of his life to experiments with aeronautical design. He was one of the first builders of a wind tunnel for testing design. He came to Kitty Hawk in 1901, and again in 1902 when the Wrights were experimenting with kites and gliders.

After his father's death, George Spratt continued with experiments on the controllable wing and had logged 100 hours of se-

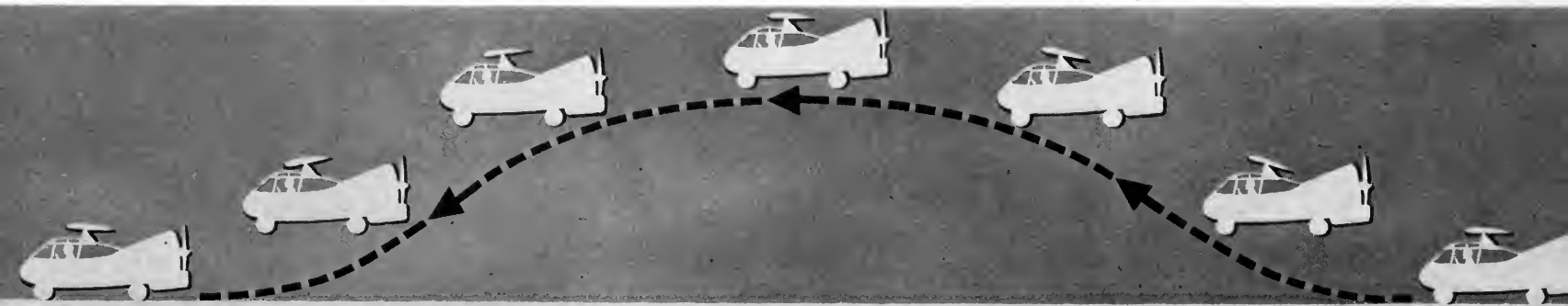
cret flying time with the wing before his friends knew of the accomplishment. Spratt cannot fly a conventional type of aircraft.

The younger Spratt built his first plane in 1918, and just when it was ready to take to the air a thunder and wind storm blew it into a mass of twisted wreckage. Ten years later he built a glider that flew successfully from water, but the depression halted his experiments.

By 1935 he was back at his experimental laboratory and flew his powered controllable wing 35 hours without mishap. Two years later he completed a flying boat under his controllable wing, but it was 1940 before he got the boat flying to his satisfaction. In the summer of 1941 he completed his 100 hours of secret flight.

Spratt joined Consolidated Vultee at the Stout Research Division in 1944, and experiments in the development of his wing design, under auspices that give it the benefit of every engineering resource, have been proceeding ever since.

This shows take-off and landing of plane equipped with controllable wing. The wing is mounted on a bearing that permits movement about two axes.



Stop at Accra

By Lieutenant Sidney Danoff



Liberator Express at Accra unloading passengers: "I got out with the crowd, conscious of a sudden feeling of gratitude to the monster." Dmitri Photo

LAST year ATC, through its nine foreign divisions, furnished transient quarters to some 5 million persons, at various stops on its routes; fed them 15 million meals; provided another two million meals as lunches, to still hunger on long hops over oceans and continents.

Its chain of hotel accommodations at the various bases is called the "De Gink" system, for reasons already lost in soldier lore. I knew little enough about any of the system when I started out, with Africa as my final destination; I learned later that Accra is typical of the way our Air Forces have carried American order, ingenuity and invention to even the most outlandish corners of the map.

I got there with no great expectations. No one had told me. I only knew this was to be my new post. Our C-87 cavorted its bulky frame into a sliding bank, and a few of my internal organs collided belligerently.

Then the mammoth wheels of our Liberator grabbed at the asphalt, we rolled once more across the earth, and the hatch was thrown open. A clean-cut 2nd Lieutenant stepped through the opening with a friendly grin and rattled off his do's and don'ts. I got out with the crowd, and looked back at the plane, conscious of a sudden feeling of gratitude for a monster that had raced us across the Atlantic with only one perfunctory stop at Ascension for a breather.

The scene around us was impressive. The

The Air Transport Command celebrates its 4th birthday on May 29th. Lieutenant Danoff met it for the first time when he flew to Accra. And he was surprised.

operations building lay snugly against the edge of the runway and looked like the efficient nucleus of a modern, commercial airport. I glanced casually at our guide, expecting commands, but he spoke to all and sundry as though they were friendly travellers and temporary guests. We were escorted promptly to the Transient Service Building, were certified as to our immunization shots, and just as promptly assigned quarters. In the same building, I found an arm of the Finance Office quietly dispensing foreign exchange, and got a welcome addition to my short-snorter. I learned later about the ATC world wide banking system. At one base alone, it keeps more than \$5,000,000 on hand, in 36 currencies, all the time.

An orderly line of native baggage boys attached itself to our disorderly line of transients and we marched toward our quarters, stopping at the baggage room en route. Here, neatly stacked in front of us, each found his heavy luggage, available for rummaging and guarded zealously by a brawny native guard.

We reached our quarters, found them glistening from the work of eager house-

boys, and cleaned up hastily for lunch. In the Transient Mess the efficiency was obvious; the food was excellent — fresh vegetables and delicious beef; the service was a startling deviation from some I had seen in Army procedure; and the price was twenty-five cents.

THE bulletin board was advertising "Mr. Skeffington" at the "Rocsy." I planned myself a quiet movie; took my first atabrine tablet after supper; enjoyed the show; and then crawled under my mosquito netting, for a dreamless sleep.

In the morning I was assigned permanent quarters, and heaped my luggage onto the shoulders of a grinning native and left for camp. The Officer's Quarters turned out to be comfortable, well furnished, and completely convenient. Each room, with accom-

ATC Kodachrome from Miami Army Air Field

At right, old Liberator "258", a veteran of the Fireball Line operated by ATC via Accra between Miami and India, is serviced at Miami's Army Air Field. This part of ATC operations was inaugurated at Miami in November 1943 by Lieut. Col. Joseph C. Mackey, known to his men as a "pilot's pilot." His crews make the round trip to India, 28,000 miles, in eight days. The Fireball Line has flown more than ten million miles without injury to a single passenger, has spanned the Atlantic Ocean over 2,000 times.

The Fireball Line carries fast freight as well as passengers. According to Brig. Gen. Robert E. Nowland, Commanding General of the ATC's Ferrying Division, Fireball Liberators have flown thousands of pounds of important supplies to India as materiel required for our present bombing of the Japanese Empire.

modations for two, is meticulously serviced by a trained, English speaking house-boy. By arrangement the same boy takes care of your laundry, and will return it in 24 hours.

In the course of the next two weeks, I met a galaxy of officers, enlisted men, British civilians, Red Cross officials, and an affable, well liked Chaplain. The more I talked, saw and discovered, the more enthusiastic I got about ATC.

As a guess, I'd say that 80 per cent of the American public would scoff at any homecoming soldier's report of meeting an air base in Africa offering a lovely beach for surf-boarding; a huge theatre with a spaciouly built stage; a well-stocked library; a post-exchange boasting everything from silk stockings and hairpins to a fine selection of jewelry and clothing; an excellent tailor-shop housing approximately eighteen qualified needle workers. But such facilities are exactly what you find at Accra.

THE Gold Coast, which originally attracted the white man for its gold, and later because of the wealth it offered in the form of slaves, has long been a cross-roads. The earliest authenticated visit seems to have been made by Portuguese sailors in the year 1471.

Today the administration is under the control of a Governor and Commander-in-Chief, who is responsible to the Secretary of State for the British Colonies. A population tally, taken in 1938, totalled 3,789,909. Accra, the capital city, lying on the lip of the Atlantic, was picked originally by Pan-



"These Gold Coast natives speak a halting English, learn rapidly, serve perfectly."

American Airways, Ltd., as an ideal base on the route of Middle East and Southern Europe traffic.

Despite some centuries of trading with Europeans, the country's natural wealth is almost untouched. It is fantastic to see beautifully grained solid mahogany so abundant that it is commonly used to make dust scoops, to patch ramshackle buildings, to build latrine shelters. Gold is still available. As late as 1938, the gold exports from this economic wonderland approximated at £4,800,000, or some \$20,000,000. Smaller scale operations have produced manganese ore, rubber (raw), bananas, kola nuts, diamonds, cocoa, copra, palm oil, cattle hides, and lime products. Most of the mining operations in the country are carried out by British companies under Europeans' supervision with African labor.

A number of GIs now listen wistfully to hopeless offers by Britons of three to four thousand dollars for anything from a '38 to a '41 Chevrolet. It is natural to assume that war scarcity of automobiles is the basis of these extravagantly proffered sums. But the wealth in the hands of those who have seen the economic possibilities here and are developing them is also responsible. The effect of the new air age, in enhancing Accra's world-importance, can only be to increase that wealth.

The American Air Forces, through ATC, occupied the old Pan-American station early in the summer of 1942. George Kraigher, Operation Manager for Pan-American, was commissioned Lieutenant Colonel. On August 31 of the same year, the Accra Army Air Base was activated and its command assumed by Colonel





The main Post Exchange sells almost anything a soldier needs to buy.



This PX branch at the Accra beach provides refreshments for swimmers.

Charles D. McAllister. Almost simultaneously, Wideawake Field on Ascension Island was opened in August, 1942.

With this stepping stone at Ascension completed, Accra immediately became a base of global importance.

A staggering number of American military personnel pass through Accra as ATC transients steadily—and ATC gives them all a feeling that this is their America. Here in Africa, they can stroll along a palm lined beach that rivals sections of Daytona and Miami; here they can join beach clad couples, soldiers and Wacs; here they can enjoy lolling, surfing, cold coca-colas, fruit juices and toddy.

Nearby native fishermen offer local color as an eager gallery of observers applaud their net-hauling, while native women haggle ferociously over the catch, and suckling infants strapped to broad backs peer naively at rouged lips and two-piece swim suits.

The beach, one of the major spots of recreation and entertainment, is flanked by two fine theatres, called "The Bushtown" and "The Rocsy." The camp is studded with Recreation Halls and Dayrooms — looked after by competent, attractive Red Cross girls. A fine gymnasium, recently built, offers opportunity for sports and body conditioning. League baseball games are weekly highlights.

With the arrival of the first WAC Detachment on the 25th of September, 1944, dances, picnics and dates could become casually accepted as part of off-duty routine. An organized dance band, staffed with the inevitable "hep" musicians, furnishes a

roster of all late dance tunes, for the weekly get-togethers of officers and enlisted men.

The Special Services Department offers golf and tennis equipment, weekly Bush Trips for aspiring GI tourists, fishing trips complete with fishing tackle. An excellent Radio Station (WAGI) provides continuous broadcasts in the form of major radio programs recorded for overseas use, and daily news bulletins. A daily Base paper known as "Palaver" is available to all. A recognized arm of the famed GI college teaches those who want to learn. And a steady flow of fine USO entertainment is on tap for those who want amusement.

When a soldier stationed at the base has accrued sufficient furlough time, he has a choice of visiting such spots as Palestine, Cairo, Johannesburg, Asmara, Eritrea, and Casablanca, with transportation furnished and travel time discounted.

There are approximately 6,000 natives employed by the reservation as house-boys, clerks, janitors, carpenters, painters, drivers, and laborers, all necessitating the smooth operation of a large, detailed organization. These Gold Coast natives, who speak their own "Ga" fluently, and a questionable English halting between British perfectionism and American slang, are a clever and ambitious people. They learn rapidly and serve faithfully. Many are even now pursuing the hapless Jap through the dense Burma jungles.

The policy that forbids "fraternizing" between officers and WACs is strictly observed, but the scheduled officers' dances are frequented by nurses, Red Cross workers, and occasional visitors in the form of

British officials and their wives. Our own nurses are often supplemented by an influx of the English "Angels of Mercy," called Sisters. Needless to say, competition for their partnership is keen. Bingo sessions are featured by the Club management—and for a change of scenery, a race track located near by provides exciting seasonal meets.

The "Accra Club," an organization of British Military and civil officials, is located in town. Transportation is available to officers at all times. The Base Post Exchange rates a Medal of Honor for quality and quantity. The installation of a bottling machine has even made the supply of coca-cola inexhaustible. Plenty of ice-cold local and American beer and ice-cream are always on tap; and a large night-clubbish structure, chortingly termed "Snafu-Pavilion," offers table service, a waxed dance floor, a fancy juke-box, and an impressive list of sandwiches.

The idea back of all this is that "a happy soldier is a good soldier." Today all GI hearts are naturally straining toward thoughts of home, even though many of the boys must remain in Europe still for a long time to come, while others go on to Japan. Accra is evidence that our Army knows the importance of morale, and uses this knowledge in very practical applications to the fullest possible extent. With Accra as an example of what our Services can do for their men when the opportunity offers, I think the folks at home needn't worry over their boys in the days ahead, even if lots of soldiers have to stay around in Europe after the war's end for quite awhile.



"Towing TESSIE STINSON"

by
Lieutenant
John C. McGee

TOWING TESSIE" is a "pre-war lassie with a convertible chassis," working for the Civil Air Patrol. Shorn of two-tone leather upholstered seats and cushioned carpets, she is a Stinson Reliant that became a "Rag Dragger," or Tow Target plane.

In the last year and a half, on both East and West Coasts, the Civil Air Patrol established bases for towing aerial targets, to train gunners for anti-aircraft firing. This released a vast reserve of trained military personnel and combat planes badly needed on the battlefield.

Lt. Col. Julius L. Gresham, of Daytona Beach, Florida, a veteran of the U.S. Marine Air Corps in World War I and former CAP Anti-Submarine Patrol Base Commander, was put in charge of all Tracking and Towing throughout the Eastern Seaboard. Known as the 22nd Tow Target Squadron,

with headquarters at Hyde Field, Clinton, Maryland, the many detached units have ranged from Key West, Florida, to the Canadian Border.

Towing targets is not a glamorous job, and Army pilots welcome any excuse to avoid it. The entrance of CAP into this work was hailed by Air Corps and Anti-Aircraft alike. Stinson pilots responded to their assignment with the same fervor and zeal which they had displayed in using their little planes on coastal patrol.

Towing targets for anti-aircraft gunners meant dragging twenty-five pounds of "fish" and target at the end of 3,000 feet of cable. It didn't seem practical to expect a Stinson to do it. But a Stinson Reliant Jr. was flown to Bradley Field, Connecticut, in

November of '43, and a tow reel installed. The apparatus, weighing slightly over three hundred pounds, is identical to that used in single and twin-engined Army and Navy planes for similar purposes, with the exception of the amount of cable used.

Then came the first try out at the Northville Firing Point on Long Island, New York. Batteries of 40 mm. and 90 mm. guns gave "Tessie" the acid test. She proved such a huge success that orders were issued immediately for every available CAP Stinson of her class to be assigned to active duty with the U. S. Army Towing Detachment, for conversion to this new enterprise.

Flying day and night, in all kinds of weather, CAP pilots have been towing for every conceivable type of anti-aircraft gun.

The Onward Sweep of America's Power through the Pacific

SYMBOLIC of America's strides toward final victory in the Pacific is this U. S. Navy kodachrome of a Liberator landing in the midst of destroyed airplanes on a Leyte airstrip, when we retook the Philippines.

It is such airpower which has enabled us to move up to Japan's shores and make the Pacific Ocean an American lake, even while we were simultaneously fighting in Europe the greatest war of our history.

"In every one of the major and decisive naval engagements in the Pacific, the decision has been won by naval airpower." Those are the considered words of the eminent commentator of the N.Y. Times, Hanson W. Baldwin.

Further, our land-based airpower, in the hands of our Army Air Forces, now holds bases like Iwo Jima and Okinawa that will permit us to duplicate in Japan the steady strategic pounding which destroyed Germany's power for successful war making. The enemy realized this clearly by the Spring of 1945. The Tokio newspaper Yomiuri Hochi admitted in April that the loss of Okinawa leaves Japan with "no hope of turning the course of the war," and the Tokio radio declared:

"It is a mere 700 kilometers distance between the mainland and the Okinawa Islands. It is about the same distance from Okinawa to Taiwan (Formosa) Island. Once the enemy establishes himself on Okinawa, the greater one-half of the mainland of Honshu and Chosen (Korea) will also come within the flying radius of the enemy B-24s."

The fall of Germany hastens the coming of the feared B-24s and all our other bombers in overwhelming numbers. General of the Army H. H. Arnold, chief of the Army Air Forces, has promised that "every plane that is being used against Germany will be sent against Japan."

In taking the island bases our airpower needs for its final Pacific operations, we shall also acquire sources of nearby fuel. That is the ultimate meaning of our assaults on Borneo, rich in petroleum resources. (See Pacific Ploesti, in March Plane Talk.)

Meanwhile our destruction of Japanese airpower has proceeded so swiftly that already our ground troops can land in the Far East where they will, just as they did on the European continent, without serious threat from overhead. Since last September the Japanese air force has lost over 10,000 planes to the United States Navy and the Far East Air Force. Lieutenant General George C. Kenney, Commanding General of the Far East Air Force, said in March:

"Japan really lost a big air force in the Philippines. I do not think the Japanese Air Force is a threat to us any more. The Jap hasn't the pilots to fly the planes if he had them, and he hasn't the mechanics to maintain them if you gave him the planes. His good mechanics are down in Rabaul, Bougainville, Wewak, and in the swamps back of Hollandia. He can't evacuate them, because when he does try to send a ship out, our youngsters go out and sink it on him."







Look at Santa Ana Now!

By Sergeant Robert Segal

In the patio of the Officers' Club returnees can grab themselves a hunk of California sunshine, or just sit in the shade and dream. What a change!

FOR two and a half years, Santa Ana was the spirited, demanding, driving mistress of 125,000 pilots, bombardiers and navigators. As a preflight station, she spelled "shoot—and salute" to thousands of youngsters pounding down the hectic road to silver wings. Santa Ana Army Air Base was the home of 30-second formations, Sunday parades, 42-day confinements, drill, calisthenics, bivouacs. There was always some joker yelling "On the ball, mister!" "Strike that brace!" "On the double!" "Fall in!" "Fall out!" "Straighten that line!" "Hit that pivot!" "Let's get eager, Mister!" "Let's get some hubba-hubba!"

Santa Ana's old grads will always remember those things, and more. The grassless stretches of sand. The mud. The wind storms. The heat. The cold. She was a tough mistress, and had to be, because she was training a lot of raunchy kids to be soldiers.

Today, lots of the boys who went through that discipline are coming back — back to Santa Ana from the wars, to go through what is called Personnel Distribution. But the sight of the old place today practically floors them!

For, putting it in words of one syllable,

the West Point of Southern California has been transformed into a Grand Hotel, complete with oyster cocktail on the dinner menu. As a redistribution and convalescent hospital combined, this preflight terror has been converted by the Personnel Distribution Command into a downright dream of heaven.

Its denizens enjoy grass and trees and lots of free time and marvelous chow. They can't even spell *formation* any more. The accent is on easy, pleasant living.

Put yourself in the place of a "returnee". Here you are, back in the U.S.A. with a chestful of hardware and an arm-load of service bars. Look around you. There's a 20th Air Force patch. Another from the 5th. The 7th, the 8th, the 9th. They're all here. What goes on?

First of all, as a "returnee" you have no military duties here. They call for you at the station, bring you out here in a bus (and that doesn't mean a GI ton-and-a-half). They check you in at the reception house — like a hotel lobby. There's coffee and light chow for the lonely hearts and empty stomachs, and there's a chaplain on hand, day and night, to give you all the free

advice and help that a man could ask for.

The next day you fill out a few forms. Not enough to give you writer's cramp. Then they turn you loose. Explore the joint. Visit Hollywood, the beach, Cousin Minnie in Pomona. The day is yours.

On the second day, you begin to process. They examine your gizzard and your 12-year-old molars. They pinch and prod and X-ray and test and re-test. They find out what makes your wheels buzz around. They go over your clothing issue, and nobody tries to fast-shuffle you into a statement of charges, either.

They replace, without any lip, what's missing from your barracks bag. They tell you to drop around to the finance office where you get all the back pay that's coming to you. If your records are incomplete, they'll take your word for it. You bounce over to classification one day. Another combat veteran, assigned here, goes over your record, asks what you'd like to do, what you can do, what you can't do. He talks your language — he was over there, too. He'll give you the straight dope on what to do about getting the job you want and can do.



The swallows return to Capistrano, and meet some happy airmen who've just done some returning themselves. (The pigeons live here permanently.)

The processing takes you about six days. It's done in short jumps, a couple of hours at a time. Nobody's crowding you. You don't spend any great amount of time in a GI line. And when you are done for the day, your time is your own. When a suitable station is found, you ship. But until that time, you relax, play, have a flock of beers and a fling at Los Angeles. You're on your own good behavior and the gates are always open.

Special Services jumps in and opens quite a bag of tricks. Want to play golf, badminton, do some skeet shooting, deep sea fishing? They'll arrange it for you. Like to dance? See some Hollywood entertainment? It's at the service club. And there are tours to San Juan Capistrano (where the swallows come back . . . remember?) to Hollywood, to the homes of stars. There's roller skating, bowling, ice skating. If you want it, we got it, Joe. Just name your poison.

We have four chapels on the base and chaplains of the Catholic, Protestant and Jewish faiths. They're good Joes, those chaplains, and they'll be glad to shoot the breeze with a guy any time.

The service club is as beautiful as a per-

fect landing. And the officers' club is no slouch either. Drop around and take a look-see.

Maybe you like movies. Well, we have three shows on the base. One of them has a matinee every afternoon. Fifteen cents and your good conduct medal will get you past the door, even if you don't have a good conduct medal.

And while you're knocking yourself out at the Hollywood Canteen or grabbing a big chunk of bunk fatigue, what goes on with your records? Well, the classification department gets together with the medics. They decide what you are able to do physically and from the standpoint of training and ability. Your personal preferences are respected as far as possible. Maybe you go to Kelly Field as a clerk, Randolph as an instructor; maybe you go to a school for up-grade training in some specialty that appeals to you.

Some of you may stay here in intelligence, public relations, the convalescent program. Some of you go to the Continental air forces, to the training commands, to the Air Service Command, or stay in PDC. No matter what the deal is, Joe, you can bet

your Air Medal against a Hoover button that it will be a square deal.

NOW, there's another group of returnees who amble up to the campus. They are convalescents ticketed for the hospital. Their deal reads a little differently.

It's a sad sack of a soldier who goes around feeling sorry for himself, thinking the world owes him a living or he isn't getting an even break. You won't find many guys of that stripe, because of the convalescent hospital. The hospital is concerned with getting you on your feet, fit for a job, ready to take a healthy swing at life in the Army or on the great outside.

They don't try to fit round pegs in the square holes. They find out what, if anything, is wrong with you. They fix the damage, physical or psychological.

Every group of patients has a personal physician. He's the old family doc who calls a bellyache a bellyache. He's your personal contact between you and the Army Medical corps. He's on your side. He gives you the inside track on what goes on.

You also have a personal advisor. It's his business to straighten you out generally—



In the classification center you recline in an easy chair while waiting for attention. "Thou shalt not have a GI line" is a first commandment at the Santa Ana Army Air Base.

find out what you want to do. The hospital asks that you spend a couple of hours every day *doing* some job. Maybe you like to fool around a wood-working shop. Fine. Maybe you want to brush up on your math. Swell. If you're an athlete, student, carpenter, clerk, bookkeeper—they have something to interest you.

Listen to this, Joe. More than 150 guys have received their high school diplomas in this very hospital. Trained high school teachers come out and give you the courses you need to qualify. And—get this!—several men have graduated from college and received their diplomas while they called our hospital home. You can fit into any one of these little plans of your own choosing. The personal advisor and personal physician will tell you how it's done.

Meanwhile, you have a game leg or an arm full of flak. Okay. The docs will work on that little problem while you're keeping busy and happy with the kind of work you *want* to do. There's not a single AAF Joe who isn't a hot man for at least one line of work. They help you to find that line and train yourself to be damned good at it. A man who can do a job doesn't have to feel sorry for himself—and he won't.

They don't slap you in bed, either. The object is to get every guy out of the sheets as soon as possible. You'll be walking around in your OD's just as soon as you can. You'll forget you are in a GI pill factory. You'll get out sooner than you think.

So that's the picture. You'll be able to fill in the details yourself. Winding this thing up, why did they pick Santa Ana for a redistribution station and convalescent hospital? For one thing, the climate is just

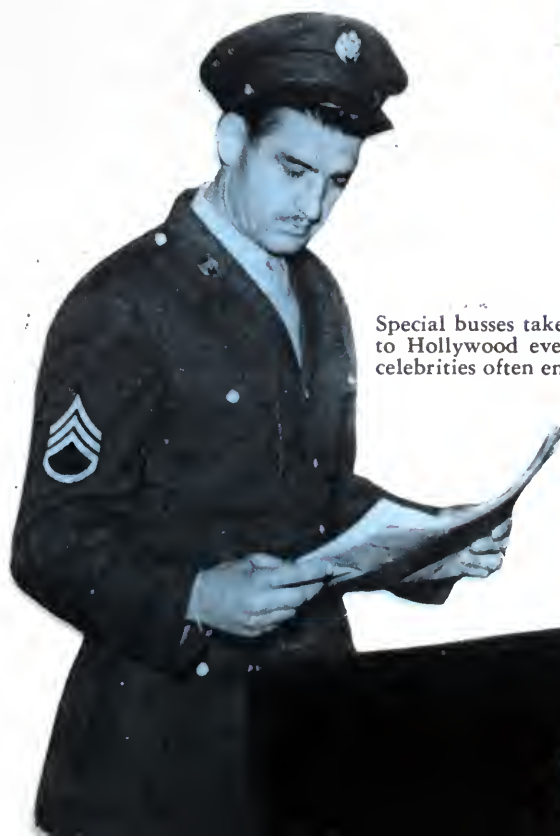
about as good as the Chamber of Commerce likes to think it is. The recreational facilities are handy and there are plenty of them.

Take a look around: visit Hollywood, Balboa, Newport, Laguna, Long Beach. Get a great big bunch of sunshine (if it's raining today, we're only kidding) and a little exercise. (In a couple of days you'll know why General Harmon picked us out for this job.)

We think we have the best chow in the Army. Take a look at mess hall thirteen. Ever have shrimp cocktail, oyster cocktails, broiled lobster, five desserts in a GI mess? We do here.

But we have something else also, something much more important. We have a system for treating each man as a man. We have a policy of doing our level best to give

every guy a 100 per cent okay deal. How well we've succeeded was illustrated not long ago when the ground forces decided to work out for the returned GIs the same sort of system we're using in the Air Forces in places like Santa Ana. We take that to mean we've done a pretty slick job.



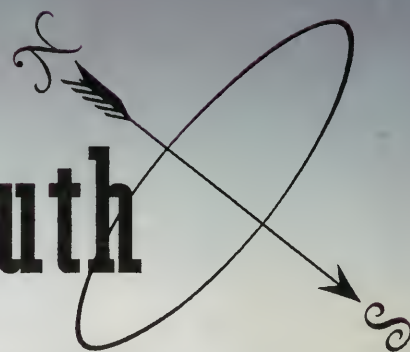
Special busses take the boys into Hollywood every day. Film celebrities often entertain them.





The General said South

As Told By Lieutenant Phillip K. Shute
to Captain Jerry N. Ransohoff



AAF Kodachrome

So this Liberator crew made a pioneering flight of 10,000 miles, to the Pacific tropics and back.

"I WANT to go to Hawaii," the General told us one morning in December.

Two-and-a-half days later our Aleutian base dropped behind us and we were off to the tropics in our Liberator. It was the first leg of a 10,000-mile trip to pioneer two new air routes over the North and Central Pacific.

The "General" was Major General Davenport Johnson, commander of the Eleventh Air Force, and "we" were a crew of six, together with some distinguished passengers.

Nothing exciting happened on our trip at all—except that we moved from one world to another and back again, all in less than a week. That made it something for us to remember—just because we did it as simply as you'd have made a vacation canoe trip up the Hudson, a few years back. Maybe you'd like to hear about it.

As a crew, we felt heavy responsibilities. For we were carrying as passengers six high-ranking officers of the Aleutian Theatre



The crew of six standing beside "Down and Go" in the midst of Aleutian snow, with the 11th Air Force insignia on their B-24.

from the Army, Navy and Marine Corps. There were, in addition to Major General Johnson, Vice Admiral Frank Jack Fletcher, Commander of the North Pacific Force and area, with Captain J. J. O'Donnell and Colonel R. A. Boone, USMC, of his staff;

together with Colonel J. R. Dunlap of the Alaskan Department and Major Thomas G. Netcher, assistant operations officer for the Eleventh Air Force. Major Netcher was to assist with the piloting.

Our plane, "Down and Go", of the Eleventh Air Force, was a B-24, fitted with bomb bay tanks to carry a very heavy load of gas for long-range flight.

Our take-off was planned for night. With our crew, passengers and luggage, the plane was heavily loaded as we taxied out to the runway. There Major Wright asked for take-off instructions—destination:

Hawaii. That was 2,300 miles away—over a route never flown before in a land-based plane.

We got the clearance from the tower and the Liberator started down the runway gathering speed. We used up most of the runway before we were air-borne, but there was nothing unusual about this—we had taken off with heavy loads before.

There were the usual Aleutian winds.



Maj. Gen. Davenport Johnson (right) and Vice Admiral F. J. Fletcher with their B-24 at Hawaii.

But we found that the weather officer had given us reliable weather information. We had little difficulty climbing to calmer air and holding our course. Major Wright completed his two hour shift at the controls uneventfully, and Lieutenant Kline took over, flying from the left side, with Major Netcher coming on as co-pilot.

Unknown to me, Sergeant Adaway kept



The author: "Once we got out of the Aleutians, I could get celestial fixes." His ETA was perfect.

in radio contact with our home base all the way out and secured repeated fixes on our position. (He was checking on me.) I found that the navigation presented few problems. Once we got out of the northern weather, I could get celestial fixes—something rather infrequent in the Aleutians.

Around 0830, Aleutian time, the twilight that precedes the dawn began to light

The cook had egg trouble: "We determined to get hold of a new high-sided frying pan in Honolulu."



the sky. The passengers stirred, and began stretching to get the kinks out of cramped muscles. Pfc. Hillenbrand, assistant engineer, took over as chief cook and steward.

The cooking of the coffee proceeded satisfactorily enough. But when it came to the eggs, the air was just rough enough to keep the eggs from staying on the hot-plate long enough to get cooked. Each time Hillenbrand would crack an egg on the plate the plane would lurch slightly and the eggs would slip to the floor.

After nearly a dozen tries, the cook scooped the eggs off the floor and dropped them out of the bomb bay—we dropped our "eggs" literally. So coffee and cookies made up the breakfast. We determined to get hold of a good high-sided frying pan at Honolulu.

A LITTLE over 1,000 miles out of Hawaii, with Major Wright at the controls, our Number 2 engine, the port, inboard one, began to falter. Oil pressure fell and cylinder temperature started to rise. Rather than risk ruining the engine by running it longer, Major Wright cut the switch and feathered the propeller. We lost, perhaps, ten miles-per-hour air speed and our gasoline consumption increased slightly. But the Liberator flew along perfectly, and we still had plenty of range left.

In the "cabin" the Admiral and the General had played to a draw in their cribbage contest. Cards and peg-boards were put away, and papers were taken out from brief-cases for study. There was much work ahead at Admiral Nimitz's headquarters on Oahu.

"Down and Go" churned steadily along on three engines. The outside air kept getting warmer and now sweaters came off, ties were loosened and sleeves rolled up. Fifty miles out of Oahu, four P-47s suddenly appeared to escort us in. We'd heard nothing about any proposed escort, and their arrival was a complete surprise. They wheeled overhead like small dogs around a St. Bernard.

Then Major Wright announced a landfall on the horizon. All hands were immediately at windows, trying to get a glimpse of the storied tropical islands, complete with real trees. To the Aleutian soldier, trees are one of the signs of civilization.

As we drew closer, Oahu loomed dead ahead. We had hit it on the nose, ETA and

all. We felt pretty good about the whole thing. The P-47s left us as we got over Hickam Field. As we came in, the smell of the sea and fertile earth filled the plane. The Aleutians are almost odorless; this warm-wet smell of Oahu was a new and heady experience.

After exactly 12 hours and 39 minutes in the air, the Liberator taxied up to the Operations Office. We had completed the pioneer land-plane flight from the Aleutians to the Hawaiian Islands.

Our passengers were carried off in a staff car to the first of a series of important meetings with other Pacific war leaders, and "Down and Go" was turned over to the Hawaiian Air Depot for an engine change.

Our own first move was to find quarters somewhere near the ocean—a delicious, warm ocean. Water around the Aleutian Islands is all too cold for anything except fish, seals and the Navy. The Special Service Office arranged for both officers and enlisted men of the crew to stay at cottages barely half-a-block from the famous Waikiki Beach, so we could swim whenever we desired.

We began almost immediately. The water was terrific—warm, blue, and salty. Our bodies soaked up the hot sunlight.

The chief difficulty arose when we came to put on our Aleutian clothing again—in the north we had worn only woolen clothing and none of us had had any khakis along. Officers made a rush to the nearest Post Exchange for khaki shirts and trousers; the enlisted men, more fortunate in this respect, went to the nearest issue warehouse and drew tropical clothing.

Then, that first afternoon in Hawaii, it began to rain. We loved it. This may sound peculiar, for those who endure so much rain in the Aleutians. But this rain in the tropics fell straight down, instead of coming in on a 40-knot wind. And it was warm. We stood out in it and got soaked as it fell in long spiky rods, and felt good all over.

The next morning it was all clear again and Waikiki Beach was wide and white in the sun.

That night when we returned to our quarters there was a message to call General Johnson.

"I want to go to Kwajalein," the General told Major Wright on the phone. Major Wright told the General that we were ready to leave at any time—"Down and Go"

was repaired and tested and raring to go.

There were only seven of us when we taxied out on the runway—the six crew members and General Johnson. For our other passengers stayed behind.

When Major Wright called the tower to request clearance, he was asked "Have you been sprayed?"

We hadn't. Here was something that we of the Aleutians didn't know—that all inter-island traffic in the Central Pacific has to be fumigated before departure from an airfield, so that disease-bearing insects are not transported from island to island. It's too cold for such insects in the Aleutians. We had to taxi over to the medical station to pick up an antiseptic bomb, with which we thoroughly fumigated the plane before we took off.

A few minutes later, green Oahu was below us and we were headed out over 2,100 miles of water to the famous Kwajalein Atoll, where one of the great battles of the Pacific had taken place. We had the windows open slightly and it was warm. It is hard to describe how much pleasure it was, flying along, high over the blue Pacific.

I gave the pilots a heading that would take us north of Wotje, Jaluit and Maloelap, still held by the Japanese. In the clear sky I could get frequent sunlines; with predictable winds we made our turn at the proper time, and hit "Kwaj" on the nose, after 11 hours and 20 minutes in the air.

"Kwaj" was a new experience for all of us except General Johnson—the first area we had seen where United States forces had been used in an all-out amphibious operation. We stood and stared at the trees with their tops blown off by the heavy aerial and naval barrages.

We found Kwajalein strictly GI. There are no private dwellings or surfboards. We swam in the lagoon and found it was like bathing in tepid soup. Those stationed on the atoll told us that it was a relatively chilly day—but we found it so warm that we cut the legs off our trousers and rolled up our sleeves to get cool and comfortable. Besides, we wanted more sun.

OUR next jump, after the overnight stay at Kwajalein, was a surprise. The General told us that our destination was Saipan.

Again we were fumigated before taking off. Then came another uneventful trip, and we touched down at this hard-won

American air base from which our Twentieth Air Force now constantly bombs Tokio.

At Saipan we felt like a bunch of tourists. Everybody there treated us royally, questioned us extensively as to the horrors of Aleutian weather, and moved us into quarters reputedly once occupied by Japanese non-commissioned officers.

The quarters were pretty badly beaten up and riddled with bullet holes. First they had been the target for American aircraft, and of late had been strafed by countrymen of their former occupants. We went to the outdoor movie that night, before turning in, and the next day made a tour of the island to see where the fighting had taken place. But aside from a number of large craters made by bombs and naval shells, there wasn't much to look at; the island has been pretty well cleaned up.

The rest of our trip was now no secret. We had two more pioneer flights to make on our way home. After two days at Saipan, we set out again, headed for Midway. Our Liberator was to be the first airplane ever to make the Saipan-Midway flight. It was 2,600 miles, the longest hop of our trip.

We breakfasted on C-ration and fried potatoes, reminiscent of some of our Aleutian meals, and some while after taking off passed between Marcus Island and Wake Island, still held by the Japanese. Then, thirteen hours and forty minutes after take-off time, we landed at beautiful and well-developed Midway.

It was still warm and balmy and our abbreviated shorts were in order. We were installed in luxurious modern barracks and enjoyed excellent food for our brief stay. Because the General was anxious to get back home we took off at noon the following day, with a regretful goodbye look at the Goonie birds haunting the warm rocks.

We took a heading almost due north. The hop from Midway to our home base was little over 1,500 miles. As we flew along, the blue of the sea changed almost perceptibly. The air grew colder and rougher steadily, and we changed back into our woolen clothing. Next came the sweaters; finally we had to don heavy arctic gear.

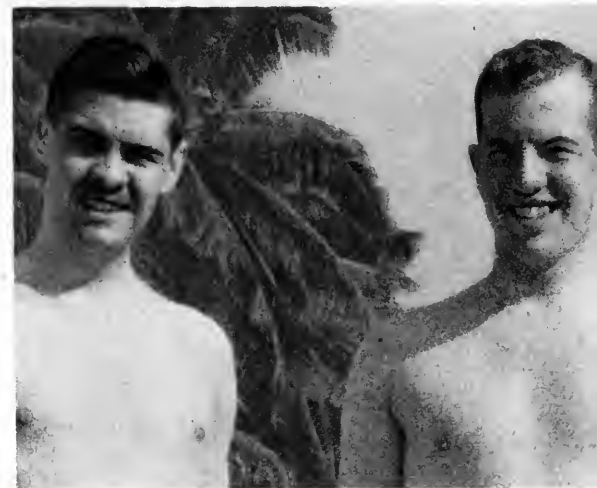
Pfc. Hillenbrand with a new skillet had the cook-stove under control by this time, and we ate well and with relish. Snow squalls now began to cross our path and the sky became overcast. Some nine hours after leaving tropical Midway, we passed over



The General talks with Colonel Keatley of the Alaskan Department, while on the field at Hawaii.

our home range station and made the usual instrument let-down in the overcast. The runway gleamed whitely below, strangely like the coral runways at Midway in the tropics. This whiteness was packed snow.

As we stepped out of the plane a cold blast of wet sleet hit us in the face. "Down

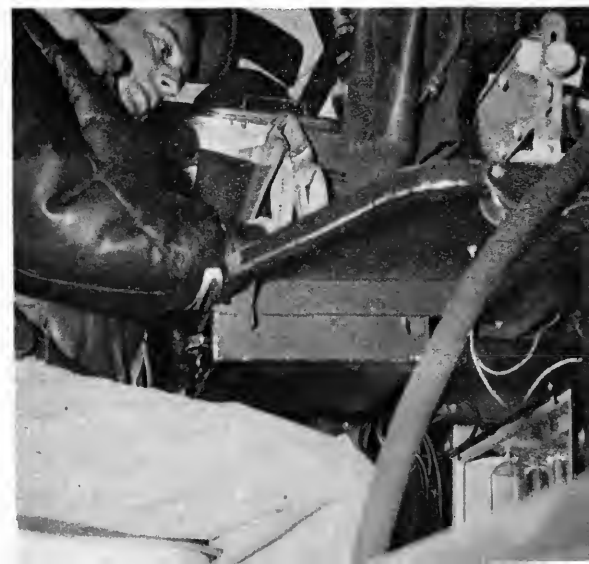


The author with Major William B. Wright, who piloted the trip: "Our bodies soaked up sunlight."

and Go" was rolled into the hangar and we headed for the mess hall. In a little over 56 hours of flying time we had covered 10,000 miles over the North and Central Pacific, had crossed 86 degrees of latitude and 76 degrees of longitude, deep into the tropics and almost to the Equator.

We would have much to tell the gang.

Staff Sergeant Adaway kept in radio contact with the home base, quietly checking on the navigator.





periods of operation, due to small mars made by rocks or debris which are encountered while taking off and landing. But Conolite wing surfaces withstand such impacts without losing the smoothness of their contours.

Plastiform is a new material that develops compressive strengths of as much as 15,000 pounds per square inch. It can be cast without shrinkage or warpage by pour-

At left, workers prepare Fiberglas for use in making new Conolite laminations.

Below, Plasti Peel film is removed from metal after use as protective coating.



Photographs by Edward Sievers

Useful New Plastics

THREE extraordinary new plastics—Conolite, Plastiform, and Plasti Peel—have been helping Consolidated Vultee maintain production during shortages of manpower and materials.

Conolite is a new high-strength plastic laminate that is stronger and lighter than the aluminum alloys ordinarily used in fabricating aircraft parts. Made by impreg-

nating Fiberglas or Fortisan fabric with a new kind of thermosetting resin, it will develop tensile strengths of as much as 120,000 pounds per square inch. It was developed by Dr. G. G. Havens and G. A. Gordon, two research engineers at Consolidated Vultee.

Metal and fabric airplane wings lose a certain amount of efficiency after prolonged

ing, brushing, dipping, or spraying. Because it melts at a temperature of only 240° F. and cools rapidly, Plastiform can be used to produce individual casts in only four minutes. The finished casts can be polished with steel wool and sawed, sanded, drilled or machined like wood.

Plasti Peel is a new kind of coating—a lacquer-like material that can be used on metal surfaces to prevent scratches, mars, and corrosion. It is applied by either brushing or spraying, dries rapidly and forms an extremely tough film.

Plastiform and Plasti Peel were both developed by L. C. Wilson, former manufacturing research specialist for Consolidated Vultee.



AAF Photo

BOMBING WITH WORDS

YOU think of Liberators as dropping bombs. But in this war our bombers have also dropped millions of pamphlets.

Anthony Eden once announced in the House of Commons that 77 per cent of all German prisoners captured in France either carried leaflets on their persons, or had used them in surrendering.

How much this pamphlet barrage by the Air Forces contributed to the final German debacle we shall hardly know until long after the war's end. Even then, students of psychological matters will probably disagree.

We do know that our pamphlet bombing ended the news black-out in Germany and her satellite countries. As soon as we gained air supremacy—the same supremacy that permitted our D-Day landings on the Continent in 1944—we rained down thousands of tons of Allied leaflets on the Germans and their occupied territories. We kept it up until our troops were across the Rhine and in the heart of Germany, taking thousands of German prisoners every day.

A newspaper in Nazi-dominated Buda-

pest, for instance, published the following report:

"A ridiculous leaflet written with mean intentions comes floating down; people run towards it and stretch up their arms. They almost attract the slip with their eyes, for the people of Budapest are most impatient. A crowd scrambles for the leaflet. They push each other. They tread upon each other's worn-out shoes. They wrestle. A short-sighted elderly gentleman says: 'That slip is mine—I saw it first.' 'It is mine,'

screams a woman. The crumpled slip is wrenched from her hand and torn to bits."

What makes this report most surprising is not that the leaflets were in great demand, but that publication of the incident occurred in a German-censored newspaper.

Himmler, chief of the Gestapo, issued a decree in 1943 that made death the penalty for circulating these pieces of "subversive literature."

"Any duplication of enemy leaflets, illegal circulation of these leaflets or of their

by
**Captain
Arthur
Settel**

Am 18. Februar 1943, wenige Wochen nach der Katastrophe von Stalingrad, richtete Dr. Goebbels an eine Massenversammlung im Berliner Sportpalast die Frage:

„Wollt ihr den totalen Krieg?“

Ein begeistertes „Ja“ war die Antwort der Nazi-Versammlung. Heute weiss Deutschland, was „totaler Krieg“ bedeutet, besser als es Dr. Goebbels und seine Ja-Schreier im Sportpalast voraussahen. Der totale Krieg, den die Nazis wollten, wird mit immer stärkerer Wucht und Wirkung fortgeführt werden, bis Deutschland bedingungslos kapituliert.

DAS DEUTSCHE VOLK MUSS SELBST WÄHLEN:
ENTWEDER Fortsetzung des totalen Nazi-Kriegs bis zur völligen Vernichtung der deutschen Arbeitskraft und Industrie — **ODER:**

“The Germans themselves must choose,” said this message, whether the “total war” that Goebbels proclaimed should end in their complete industrial destruction.

„Die natürliche und friedvolle Entwicklung des deutschen Volkes.“

In seiner Rundfunkbotschaft vom 24. Dezember 1943 erklärte Präsident Roosevelt:

DIE Vereinten Nationen haben nicht die Absicht, das deutsche Volk zu versklaven. Wir wünschen, die natürliche und friedvolle Entwicklung des deutschen Volkes zu einem geachteten und wertvollen Mitglied der europäischen Völkerfamilie nicht zu hemmen. Aber wir legen allen Nachdruck auf das Wort „geachtet“; denn wir sind entschlossen, das deutsche Volk ein für alle Mal vom Nationalsozialismus, preussischen Militarismus und von der phantastischen Idee zu befreien, dass das deutsche Volk eine Herrenrasse sei.“

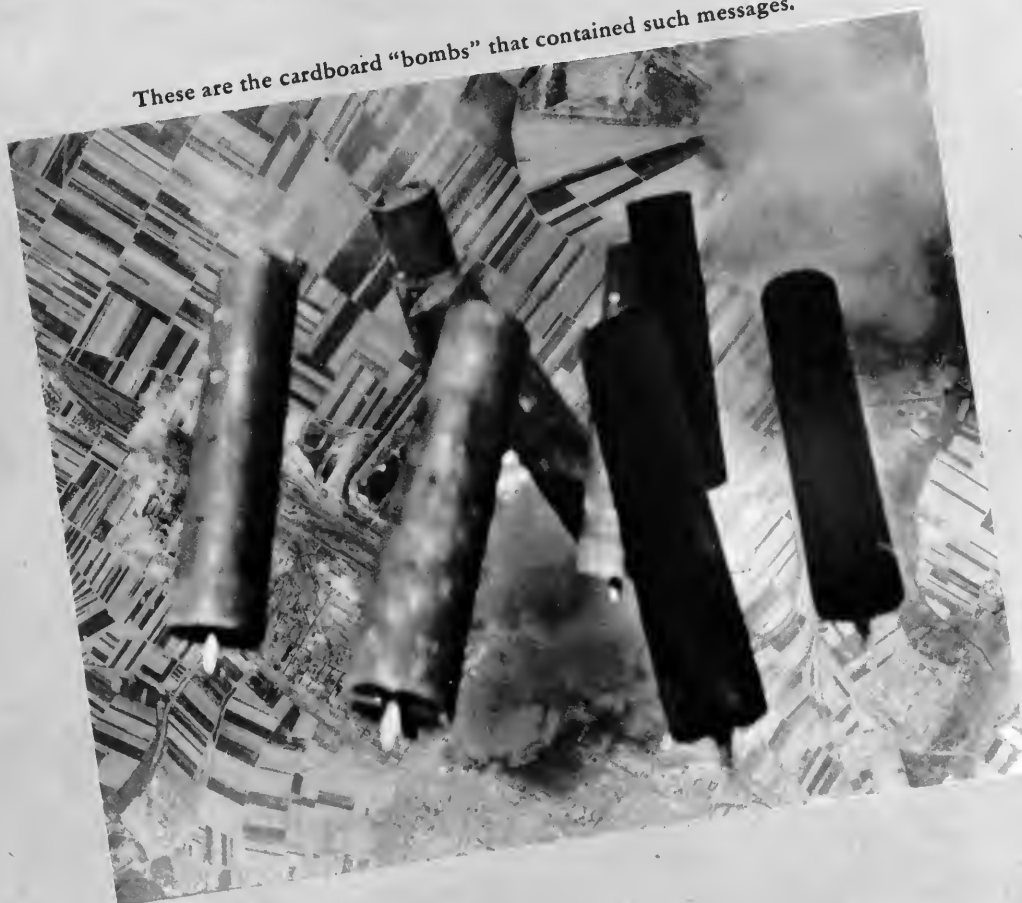
„Grossbritannien, Russland, China, die Vereinigten Staaten und ihre Verbündeten vereinigen mehr als

drei Viertel der Gesamtbevölkerung der Erde. Solange diese vier Weltmächte mit ihrer grossen militärischen Macht in ihrem Entschluss zusammenstehen, den Frieden der Welt zu bewahren, wird es keinem angriffslustigen Land mehr möglich sein, einen neuen Weltkrieg zu entfesseln. Diese vier Weltmächte müssen jedoch mit allen freiheitsliebenden Völkern Europas, Asiens, Afrikas und des amerikanischen Kontinents zusammenstehen und zusammenwirken. Die Rechte jeder einzelnen Nation, gleichgültig ob gross oder klein, müssen geachtet und so sorgsam geschützt werden, wie die Rechte jedes Einzelnen innerhalb der Vereinigten Staaten von Amerika.“

Franklin D. Roosevelt

Or would the Germans listen to Roosevelt's assurance that the United Nations have no intention of enslaving the German people?

These are the cardboard “bombs” that contained such messages.



contents, is prohibited,” he added—to reveal that German anti-Nazis were indeed circulating them.

But Himmler could not stop people from picking up the leaflets, because they fell everywhere—in places remote from the mailed fist of authority. And the Luftwaffe could not stop the American and British planes which dropped them, because the Luftwaffe lacked sufficient power.

Almost innumerable types of leaflets were used, each with its special purpose, aimed at a selected psychological objective. Some were intended to foment discord among troops, some to worry and to demoralize enemy supporters, others to inform and alert friendly peoples.

The leaflets, packed in cardboard bombs, were delivered to air fields located closest to the targets on which our airmen would drop them. The bombs were cardboard cylindrical containers, laced with explosive primer cords and detonated by a barometric fuse. The fuse, that is, could be set at a predetermined altitude to scatter the leaflets in the desired concentrations.

Some 80,000 leaflets can be contained in a standard 300-lb. bomb, these bombs being designed for release from high altitudes, but set to discharge above an objective at a lower altitude where chances of the handbills being blown away would be minimized.

Another form of leaflet barrage was bundle dropping, the bundles being released at low altitudes in high winds. They would often travel long distances before reaching the ground.

To insure the bundles of newspapers breaking open and scattering over their targets, special care had to be taken. After clearing a plane, the packages had to mushroom open, since solid packages hitting the ground would ruin their original purpose. So the packages were tied top and bottom with cord over a sticker reading, “Please cut *one* string with knife before releasing.” The bundle would break open in a cloud on passing the slipstream.

The bombs were well suited for dropping by heavy bombers like our Liberators, by day and even oftener by night. But sometimes the leaflets were dropped by fighter planes, by C-47 cargo planes and even by the Stinson L-5s, which have been used for pinpoint distribution of surrender passes to small groups.

THE first Allied bomber to fly over the Normandy beachheads on D-Day carried no blockbusters or armor-piercing explosives, but a cargo of leaflets informing Germans manning the shore batteries that they had lost the war and should surrender to take advantage of the safety in American prisoner of war camps.

Other leaflets followed regularly. We also initiated a regular newspaper for German troops. The first issue of *Landser-Post*, printed in German for distribution five-times weekly to German enlisted troops, was already on the presses when Normandy was invaded. We also distributed by air a paper for the French—*The Courier des Nations Unies*.

Allied intelligence reports were scrutinized by the French Leaflet Section with special attention to information collected from recent French refugees. It was the consensus that the most valuable function of Psychological Warfare would be to supply fresh, daily news to the news-starved occupied territory. That is how, on June 6th of 1944, the *Landser-Post* and the *Courrier* became airflown daily newspapers, reportedly the first in history. Some 395,000 copies were printed of each issue. The AAF dropped them on Southern France just 36 hours after the first landings.

As the campaign proceeded, other periodicals were added, including newspapers in German like the *Frontpost* and *Nachrichten*, which were dropped on a daily milk-run. We also issued magazines—such as *Fontaine*, a cultural periodical for French readers, and *Toujours*, a fashion magazine for French women.

In contrast to "strategic" leaflets dropped on countries for their long-range effect upon whole populations, the pamphlets directed at troops are classed as "tactical." They are designed for immediate effect. In July of 1944, for instance, two tactical leaflets were prepared and disseminated on the Cherbourg Peninsula at the urgent request of the 21st Army Group, and 2,800,000 surrender leaflets were dropped by AAF planes.

Entitled "War on Four Fronts," this broadside posed a number of questions meant to undermine morale in frontline troops of the Wehrmacht:

The Allied Expeditionary Force was assembled on the English coast without the German air force attacking it. *Why?*

Many thousand Allied ships were assembled in British harbors without the German air force attacking them. *Why?*

The Allied Expeditionary Force reached the French coast without the German air force attacking it. *Why?*

The Allied Expeditionary Force broke through the first line of the Atlantic Wall and established bridgeheads without the German air force attacking it. *Why?*

During invasion month, June, 1944, over 87 million leaflets were dropped in occupied Europe, and in July more than 140,000,000. Of these, 53½ million were directed at the French people and German troops in France.

The tactical leaflets attacked the German's faith in ultimate victory, played on his homesickness, exploited his gripes, emphasized Allied progress, planted seeds of subversion. Nor were these appeals only in German. Every European language was used to warn, cajole and inform the troops of many nationalities impressed for service in the German Army. The soldier newspapers reported Russian successes, charted advances of the armies in Italy and France, told the results of Allied bombing attacks on Germany's industrial machine.

They gave instructions on the internationally recognized procedure for surrender, recounted the rights of prisoners under the Hague and Geneva Conventions, described the decent treatment available to prisoners of war in American and British camps.

The work of preparing the material was often done right within earshot of front line guns. This permitted them always to be

addressed to timely, current developments.

One leaflet, for instance, was written, printed and delivered within 48 hours of the assassination attempt on Hitler, to declare that the Fuehrer, Himmler and Goering could not hope by propaganda statements to minimize the incident's significance. "They are fighting for their own lives, and will drag Germany down with them."

Various captured documents showed how seriously the German High Command viewed these verbal barrages from the skies.

"The enemy will drop or fire over leaflets," one German order said. "Nobody below the rank of Major will pick them up. These leaflets will invite you to desert and enjoy the amenities of prisoner of war camps. Remember if you do, you will be taken to England and run the danger of death by the robot bomb."

The troops were told to turn in the leaflets after marking them with the word *Feindpropaganda* ("Enemy Propaganda"). They were informed that their families would be held accountable if they disobeyed this order.

The forces that we have brought to bear to destroy a barbarous enemy have been innumerable. One of the greatest was our intolerable bombings that smashed the major German cities to rubble. The results of that we can now measure with our eyes. What our bombings with pamphlets accomplished we cannot note so accurately. But they have certainly played a part in the smashing of the German will to war.

This "Safe Conduct Pass", dropped behind German lines to encourage surrenders, pictures happy Germans moving down a mess-line with the label, "Dinner in an American camp for prisoners."





This happy airman emerging safe from his blasted Liberator was photographed before V-E Day; but he shows how thousands of airmen doubtless felt.

The far-ranging

15TH

LATE in March of 1945, the War Department unpretentiously announced, "It can now be stated that at this moment no gasoline is being produced at any of the known German refineries in the operational zone of the 15th Air Force."

The statement, of little significance to the average civilian, signaled to high-ranking military strategists the near col-

lapse of effective German resistance. It was also a testimonial to the work of one of our least publicized Air Forces—the 15th. By destroying Germany's highly productive Romanian oil fields and refineries, the 15th had severed the bloodstream of the vaunted Nazi legions. The work had taken less than two years.

The 15th was activated November 1,

by Herbert Jeffrey Harmatz

1943, as a direct result of Allied discussions at Casablanca. Under the command of Major General Jimmy Doolittle, since promoted to Lieutenant General, it immediately set about a campaign of destroying German industrial targets throughout Austria, the Balkans, Northern Italy, Southern Germany and the Mediterranean coast of France.

Some of the Liberator men later assigned to the 15th did receive one great accolade, when they first bombed Ploesti in early 1943. Ploesti was Hitler's source of at least a third of Germany's oil and gasoline. Its destruction was therefore vital. The first Ploesti mission, in 1943, was staged from bases we had seized in North Africa, and Liberators from the 8th flew down from England to Africa to join in the hazardous assault. Then, after our occupation of Italy, the 15th moved up to bases on the Italian Peninsula — there to be stationed for the duration, and thereafter to be almost ignored by those who were primarily excited over the bombing of Berlin.

To those familiar with Italy only through pre-war tourist literature, an Italian base there might sound like a romantic place to be. Actually, the 15th found itself wading in mud for weeks at a time; shivering through the Italian winter; and struggling to make itself decently comfortable in the midst of an Italian people desolated equally by war and the retreating Germans, who had picked their allies clean.

The 8th Air Force in friendly England was, by contrast, in the midst of clover. The 15th had one other cross to bear — it was outside the areas that were most closely covered by news correspondents. Its work was just as hazardous as the exploits of the other Air Forces. Many of its missions were far wider in range—one reason for the many Liberators assigned to it, for these had the range required.

But its heroic exploits often got desultory mentions in the press while other Air Forces were making the headlines.

What was true for our Air Forces in Italy has applied also to our ground troops there, who were fighting a bitter campaign while the public focused its eyes on the conflict in other theatres. The famous Mauldin recorded real soldier feeling when he cartooned two GIs arriving on the German scene to tell another already fighting there, "We come up from Italy to get some public-



An unusual inside shot of a Liberator crew of the 15th returning safely from a long mission.

Damaged Libs like this are being repaired by expert ground crews — will fly against the Japs.





Liberator men in Italy did not find it romantic. They waded in mud, shivered in Italy's cold. AAF Photo



This April bombing of rail yards near Vienna was one of the 15th's last strikes of the war. AAF Photo

Below, you see how the 15th had to pry bombs out of the muddy earth in Italy's rainy season. AAF Photo



ity." Soldiers humanly tend to believe that their country values their efforts in direct ratio to the news it accords them in the newspapers back home. This is doubtless a misapprehension. But it helps explain to civilians why fighting men naturally watch the headlines.

The 15th has deserved them. In the twelve-month period ending November 1, 1944, the 15th's Liberators, Flying Forts and long-range fighters flew more than 150 million miles and dropped 200,000 tons of bombs on 620 targets scattered throughout 12 different countries. In coordinating its assaults with those of the 8th Air Force flying out of Britain, the 15th attacked almost every crude and synthetic oil refinery in German-occupied Romania, Hungary, Czechoslovakia, Yugoslavia, Northern Italy and Southeastern Germany.

Following the fall of Ploesti and the completion of the Romanian oil campaign, the 15th was assigned the task of destroying synthetic oil plants located in Silesia, Poland and Northwestern Czechoslovakia, cutting their production by an estimated 80 per cent. The outstanding success of "blind bombing" techniques, developed by the 15th to overcome weather conditions which prevented visual bombing, caused General Spaatz to praise the 15th as the "world's leading exponent of blind bombing."

Thanks largely to this heroic work, motor vehicles all but disappeared from the streets of German cities long before our crossing of the Rhine; street cars were being used to haul freight; and German roads and fields were littered with abandoned motor vehicles, armored units and aircraft with empty fuel tanks. As General Ira C. Eaker put it, "The immobility of the enemy's armies, owing directly to lack of fuel, enabled the Allies to convert the original break-through in France into a disaster in which the enemy lost a major portion of his armies."

IN one sense, the airmen of the 15th have had the most cosmopolitan experience of any of our flyers — they are among the privileged few, for instance, who have flown into Russia. It was their so-called shuttle bombing which took them there, when long missions over the Balkans made it desirable to have a refueling base on Russian soil. This bombing of Balkan ob-

jectives that were vital to German defenses did much to speed the ultimate Russian march to Vienna.

On these shuttle missions the 15th's bombers, escorted by fighters, would fly to Russian destinations bombing Hungarian targets en route. From the USSR, they would assault air bases on the lower Danube; then, on their return trip to home bases in Italy several days later, they would continue bombing and strafing attacks against Romanian airdromes. The success of such attacks by the 15th Air Force led to later inauguration of a three-way shuttle which included 8th Air Force bombers based in Britain. By October of 1944, the Russians in their drive to Budapest were able to over-run about the entire area.

Meanwhile, the 15th was also assisting the Partisan forces of Marshal Tito of Yugoslavia, by making heavy bomber and fighter attacks against German troop concentrations, ports, rail lines and bridges. Supplemented by the RAF, the 15th dropped supplies, food and equipment by parachute to the hard-pressed Partisan fighters, who thereafter gave evidence of regarding Americans as among their stoutest friends.

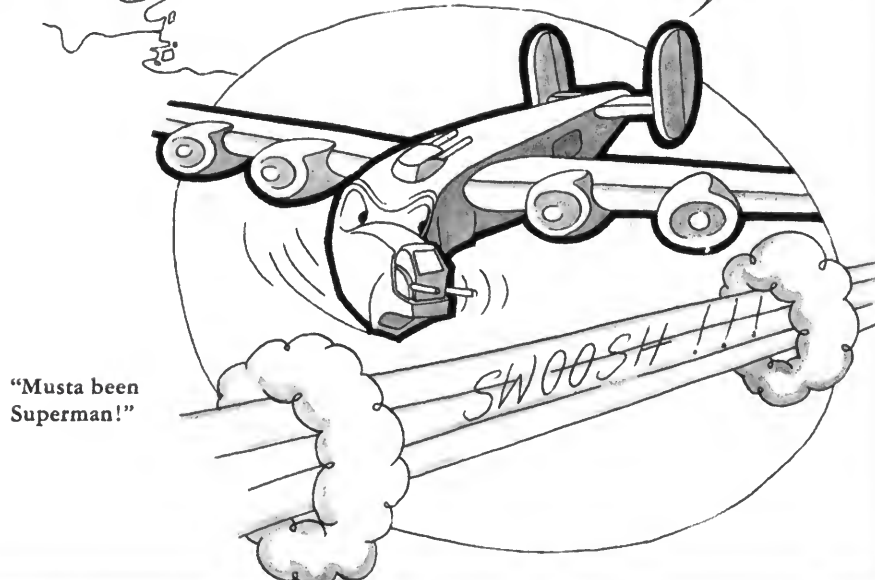
One dramatic outcome of these operations was the liberating and evacuation of almost 1,500 American airmen who had been held as prisoners of war. More than 1,000 American crew members were rescued from Romanian prison camps. An additional 342 were brought out from Bulgaria. The 15th flew these men out in gigantic evacuation operations, and made them the happiest airmen in Europe.

By March of 1945, when the men of the 15th had wiped out most of its Balkan objectives, they flew their great bombers on record 1,600-mile round trips northward, to join in the assault of Berlin — meeting there our other bombers flying from Britain.

Thus the 15th Air Force accomplished smashing victories in its own specific operation area and by its successful oil campaign helped thwart the enemy's war effort in every other theatre. While it has been only an integrated cog of a vast allied air war, its strategic achievements stand out as some of the most extraordinary in this war's use of American airpower, to be remembered long after the last signature was written on the surrender documents in May of 1945.

Lib-Looney

The average airman tends to regard his plane as an almost animate piece of machinery. Lt. Sanfrid E. Odhner is being humorous in these Liberator drawings, but there's human truth here, too.



Art FOR PRODUCTION

IN an aircraft factory, drawings are the medium used to convey engineering information to the assembly lines. Before the war, new aircraft workers sometimes had to spend weeks at school in order to learn how to read even the simplest engineering drawings.

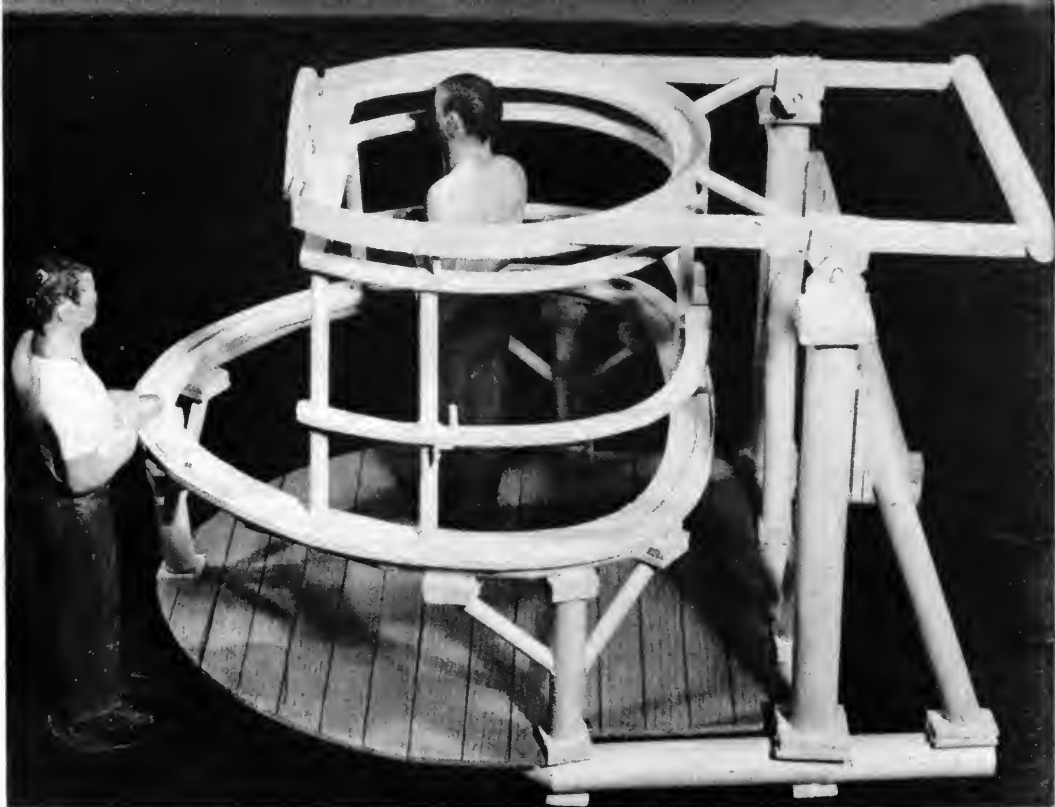
When it became necessary for the aircraft industry to hire thousands of inexperienced men and women, much had to be done to simplify traditional working methods.

First, every job was simplified, so that a worker would generally have to master only a single operation which could be quickly learned. Still, *somebody* had to know how to read engineering drawings in order to make the parts patterns and to assemble the completed parts. How could these drawings be brought quickly into the range of workers new in aircraft? The answer was found in hiring skilled commercial artists, to convert engineering drawings into pictures with perspective, that anyone could understand.

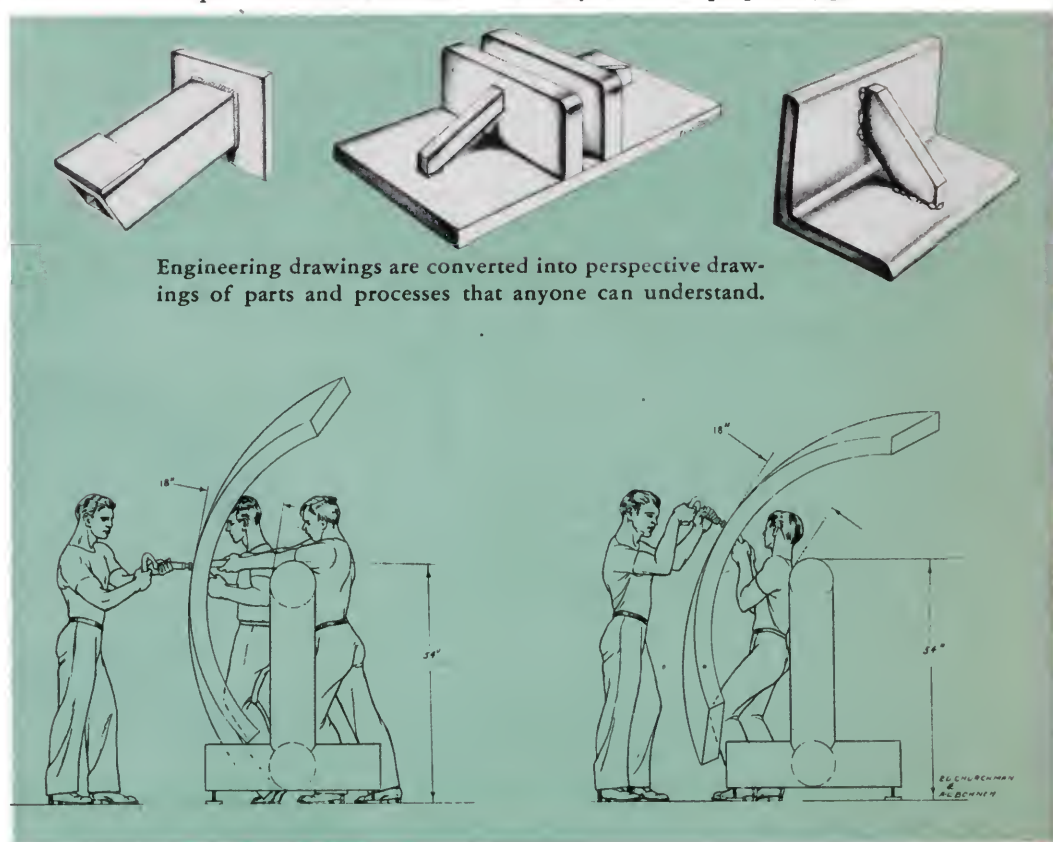
A few of the thousands of "perspective" drawings used at Consolidated Vultee are shown here. As soon as the engineering department completes plans for a new airplane, the artists are called into a conference. From the complex engineering design drawings they make up a set of "production illustrations" which show everyone—even the most unskilled factory workers—exactly how the airplane is to be constructed.

Such drawings have to be extremely accurate. Every nut and bolt must be in the right position. If some trick is required to make an installation, this must be noted in readable form on the drawing.

General drawings are also made, so that factory officials can visualize the overall job of constructing a new airplane. When special assembly tools are required, the pre-planning illustrators also prepare "ar-



Above is an example of actual scale models created by artists for proposed jigs and fixtures.



Engineering drawings are converted into perspective drawings of parts and processes that anyone can understand.

rangement art," which shows precisely what the jigs or fixtures will look like, and how they should be used.

In constructing assembly tools, one of the foremost requirements has been to make sure that each tool would provide comfortable and convenient working conditions—so that even aged or physically-handicapped men or women could be used to help build airplanes.

To meet this requirement, the pre-planners usually draw scale-size human figures

on their tooling illustrations. Recently they found an even better method, one suggested by V. A. Petricola, general supervisor of tool and operations planning at San Diego. In this method, actual scale models of humans and tools are built for each proposed jig or fixture. To the ordinary reader, this may sound like an expensive undertaking. Actually it is an economy measure, saving the cost of building real tools which might be scrapped and replaced before they have served their purpose.



Count on Stinson

FOR LEADERSHIP IN PERSONAL PLANES!

For 19 years Stinson has been a leader in personal aviation.

The first Stinson built, back in 1926, was a plane ahead of its day. It was the first plane to combine in its design an enclosed cabin, wheel brakes, electric starter, and cabin heater.

Constant improvements in design and performance have enabled Stinson planes to show an enviable record in the 19 years of Stinson history.

A Stinson was the first to fly from Detroit to Tokyo, and from New York to Bermuda. Stinsons carried the first air mail in China, Mexico, and in the Philippines. They provided the first air-mail pick-up service. And planes built by

Stinson were first to explore the Greenland route to Europe.

Pearl Harbor found Stinson ready to turn out quality planes in quantity for our armed forces.

Wherever our men are fighting, the Stinson Sentinel L-5, or "Flying Jeep," is a familiar and welcome sight. The sturdy Stinson planes serve as "air eyes" for the armed forces, parachute supply planes, flying ambulances, and liaison planes.

The New Stinson Voyager 125

The Stinson Voyager 125, shown above,

is the personal plane that we will make as soon as war conditions permit.

Powered by a 125-h.p. engine, the Voyager 125 carries pilot and three passengers. It has a cruising range of 580 miles, a rate of climb of 670 feet per minute at sea level, and a service ceiling of 13,800 feet.

The Voyager 125 has a maximum speed of 128 m.p.h. and cruises at 116 m.p.h. It takes off after a run of 550 feet, lands with a roll of 280 feet.

For full information about the Voyager 125 and free, illustrated brochure, write to Private Sales Director, Stinson Division, Consolidated Vultee Aircraft Corporation, Wayne, Mich., U.S.A.

Stinson

The Aircraft Standard of the World

DIVISION—CONSOLIDATED VULTEE AIRCRAFT CORPORATION, WAYNE, MICHIGAN, U.S.A.



Kodachrome by Fred Carlile and Duke Burgess

THE FORT WORTH PLANT OF CONSOLIDATED VULTEE

Four fifths of a mile long, and the largest air conditioned industrial building in the world, the plant is viewed here from a vantage point across Lake Worth, through the framework of Inspiration Point Pavilion. Designed and built by the Austin Company of Cleveland, it has been called "a spectacular example of new industrial architecture". At a time when production schedules on many older planes are being cut, this Consolidated Vultee plant is rushing production of the new Dominator (B-32) for the Army Air Forces.